

Amendments to the Claims:

The following listing of claims replaces all other versions of claims previously presented.

Listing of Claims:

Claims 1-6 (Canceled)

7 (Currently Amended): ~~The A~~ method of manufacturing a glass tube according to Claim 1, wherein stress exerted on an inner or outer circumferential side of said glass tube is controlled when a columnar or cylindrical glass material is heated and softened by a heating element disposed around said glass material and a piercing plug is relatively pressed into a softened region of said glass material to thereby form said glass material into said glass tube gradually, wherein said piercing plug has a tapered end, and a cylindrical or columnar portion with a constant outer diameter starting from the middle of said piercing plug, and said glass material is cooled to a temperature at which a sectional shape of said glass material is self-sustained while the softened glass material comes into contact with said columnar or cylindrical portion of said piercing plug inserted into said glass material.

8 (Canceled)

9 (Currently Amended): ~~The A~~ method of manufacturing a glass tube according to Claim 1, wherein stress exerted on an inner or outer circumferential side of said glass tube is controlled when a columnar or cylindrical glass material is heated and softened by a heating element disposed around said glass material and a piercing plug is relatively pressed into a softened region of said glass material to thereby form said glass material into said glass tube gradually, wherein a positioning dent configured so that it can guide said piercing plug to a predetermined position is provided in an end surface of said columnar or cylindrical glass material, and said

glass material begins to be formed into said glass tube gradually in the condition that said piercing plug is made to abut on said positioning dent.

10 (Original): A method of manufacturing a glass tube, wherein, when a columnar or cylindrical glass material is heated and softened by a heating element disposed around said glass material and a piercing plug is relatively pressed into a softened region of said glass material to thereby form said glass material into said glass tube gradually, a pressure at which said piercing plug is relatively pressed into the softened region of said glass material is detected and a detection signal is fed back for adjusting a quantity of heat generated by said heating element to keep said pressure constant.

11 (Original): The method of manufacturing a glass tube according to Claim 10, wherein a supporting pipe is welded to at least one end of said columnar or cylindrical glass material so that said glass material is formed into said glass tube gradually while supported by said supporting pipe.

12 (Original): The method of manufacturing a glass tube according to Claim 10, wherein said piercing plug has a tapered end, and a cylindrical or columnar portion with a constant outer diameter starting from the middle of said piercing plug, and said glass material is cooled to a temperature at which a sectional shape of said glass material is self-sustained while the softened glass material comes into contact with said columnar or cylindrical portion of said piercing plug inserted into said glass material.

13 (Original): The method of manufacturing a glass tube according to Claim 10, wherein said glass material is formed into said glass tube gradually by said piercing plug which is supported by a support jig having a gradient diameter portion whose outer diameter gradually decreases as a distance from said piercing plug increases.

14 (Original): The method of manufacturing a glass tube according to Claim 10, wherein a positioning dent configured so that it can guide said piercing plug to a predetermined position is provided in an end surface of said columnar or cylindrical glass material, and said glass material begins to be formed into said glass tube gradually in the condition that said piercing plug is made to abut on said positioning dent.

15 (Original): An apparatus for manufacturing a glass tube, comprising:
a heating element disposed to surround said glass material;
a piercing plug operable to be pressed into a softened region of said glass material to affect formation of said glass material into said glass tube;
a pressure detecting unit operable to detect a pressure at which said piercing plug is pressed into said glass material; and
a controller operable to control a quantity of heat generated by said heating element on the basis of a detection signal fed back from said pressure detecting unit to keep said pressure constant.

16 (Currently Amended): An apparatus for manufacturing a glass tube, comprising:
a heating element disposed to surround a glass material;
a piercing plug operable to be pressed into a softened region of said glass material to affect formation of said glass material into said glass tube; ~~and~~
a first gas supply portion for supplying a gas to an exterior of said glass tube;
a first gas discharge portion for discharging a gas from the exterior of said glass tube;
a second gas supply portion for supplying a gas to an interior of said glass tube;
and

a second gas discharge portion for discharging a gas from the interior of said glass tube
wherein said first and second gas supply portions and said first and second discharge portions are
~~a gas supply and discharge portion for supplying and discharging a gas, wherein said gas supply~~
~~and discharge portion~~ is operable to control flow rate of said gas so that an internal or external pressure of said glass tube is controlled.

17-18 (Canceled)

19 (Original): An apparatus for manufacturing a glass tube, comprising:

a heating element disposed to surround a glass material;

a piercing plug operable to be pressed into a softened region of said glass material to affect formation of said glass material into said glass tube;

a feed table operable to be self-propelled by a motor at a desired speed and having a chuck for grasping a piercing-terminating end side of said glass material; and

a controller operable to increase and decrease temperature of said heating element on the basis of a current or a voltage of said motor.

20 (Original): An apparatus of manufacturing a glass tube, comprising:

a heating element including a muffle tube and disposed to surround a glass material;

a piercing plug operable to be pressed into a softened region of said glass material to affect formation of said glass material into said glass tube;

a pressure detecting unit operable to detect a pressure at which said piercing plug is pressed into said glass material; and

a controller operable to control flow rate of a gas which is introduced into said muffle tube through a mass flow controller, on the basis of a detection signal fed back from said pressure detecting unit.

21 (Original): An apparatus for manufacturing a glass tube, comprising:

- a heating element including a muffle tube and disposed to surround a glass material;
- a piercing plug operable to be pressed into a softened region of said glass material to affect formation of said glass material into said glass tube;
- a feed table operable to be self-propelled by a motor at a desired speed and having a chuck for grasping a piercing-terminating end side of said glass material; and
- a controller operable to control flow rate of a gas which is introduced into said muffle tube through a mass flow controller, on the basis of a current or a voltage of said motor.